Fulcrum Testing
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UN IMO Meeting Dec 2023 Propagation Test with Heat Flux / Flow

Robby Kinsala – CEO | Americase

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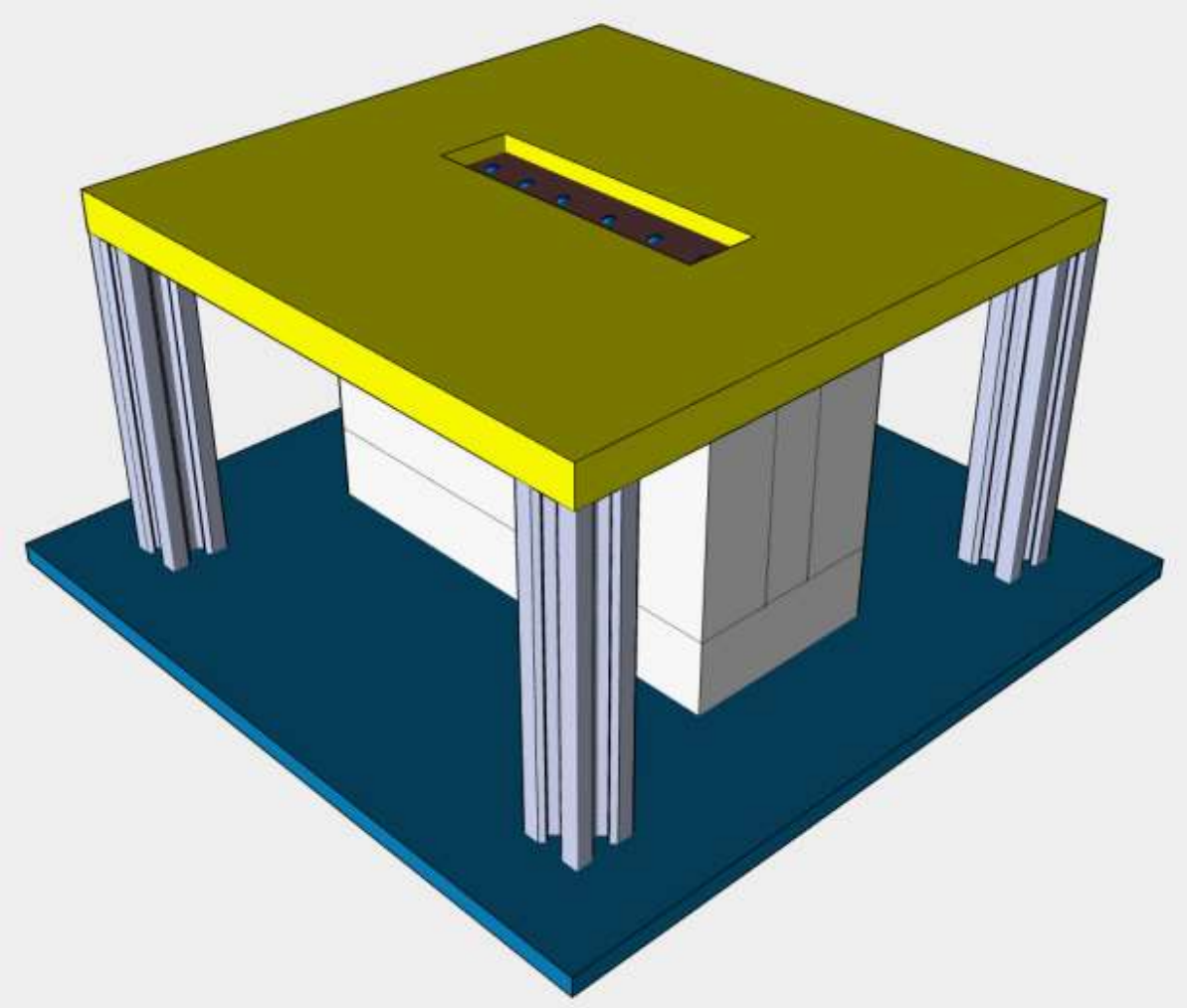
UN IWG 6 Cell Propagation Test Setup Modified with Copper Plate Calorimeter to Measure Heat Flux / Heat Flow



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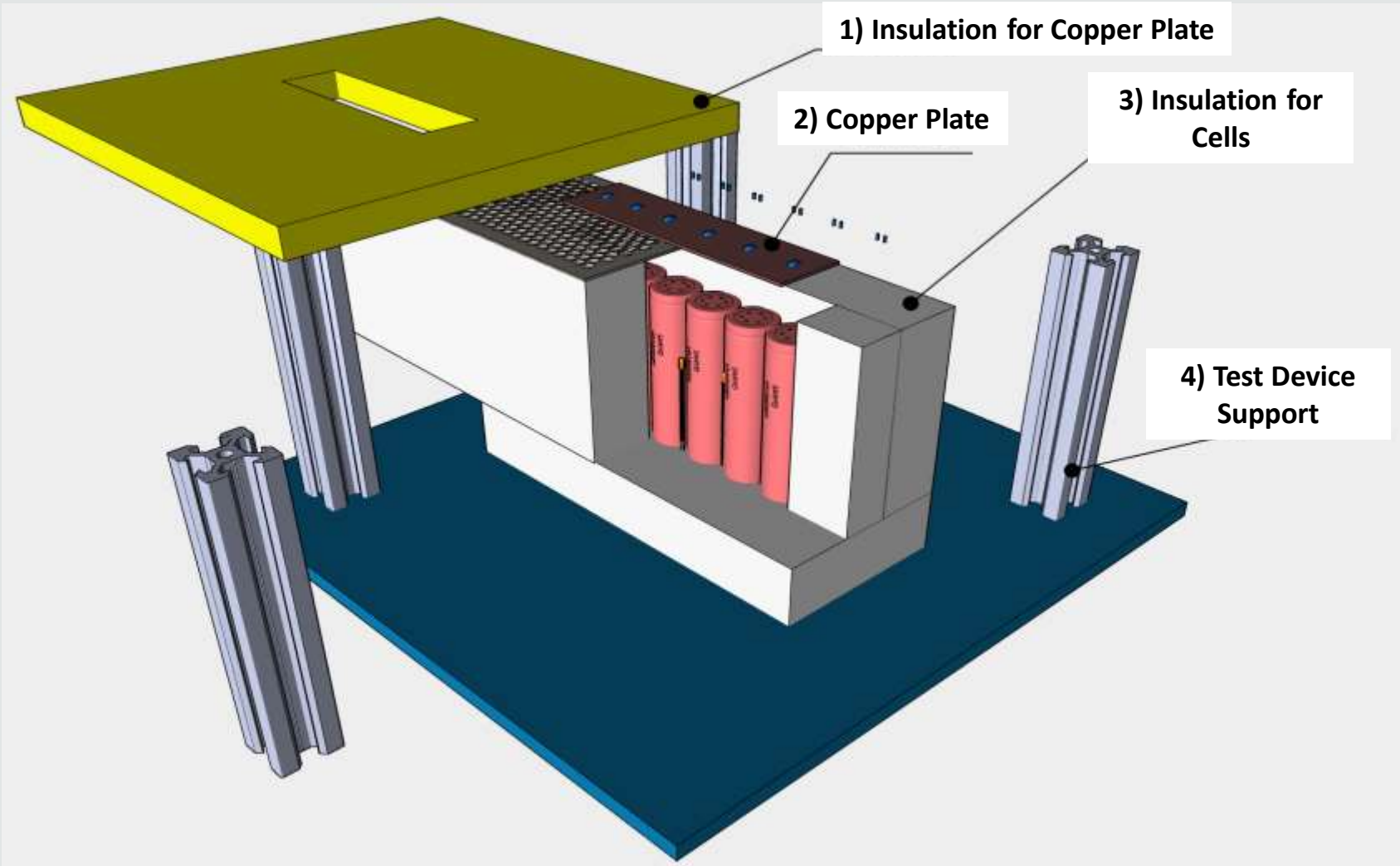
Components View 1

1) Mounting for Copper Plate should be an insulative material like FR4 with a thickness of ~ 12.7mm (1/2”).
2) Copper Plate should be a thin plate of pure copper with dimensions (l,w,t) 108mm (4 ¼”) , 19mm (3/4”) , 3.175mm (1/8”).
3) Insulating Cell Enclosure should adhere to the properties described in the test criteria and have a thickness of at least ~ 25mm (1”).
4) Test Support Device should support overhead materials and make the base and total test aperture ridged enough to withstand TR while allowing for visibility of testing.



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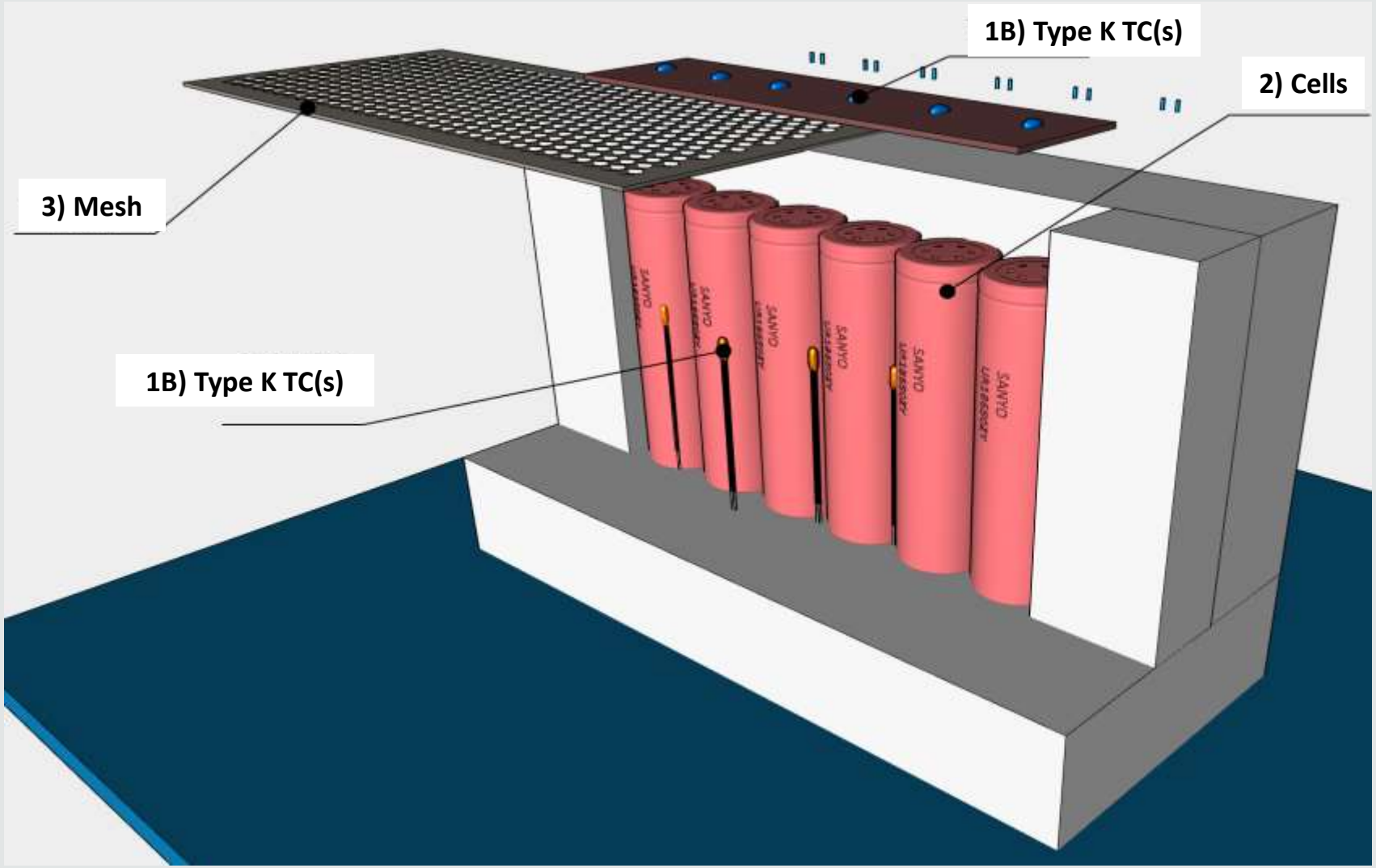
Components View 2

1A,B) Type K Thermocouples of 30-36 AWG. Set A to be centered above each cell. Set B to be centered vertically on each cell and offset at 45° to allow housing closure without impedance. Set A to be secured with Kapton tape. Set B to be “peened” into copper plate.

2) 18650 Cells (Qty: 6) should be touching and in line.

3) Mesh material to allow gases to pass through while mitigating the escape of core ejecta material.



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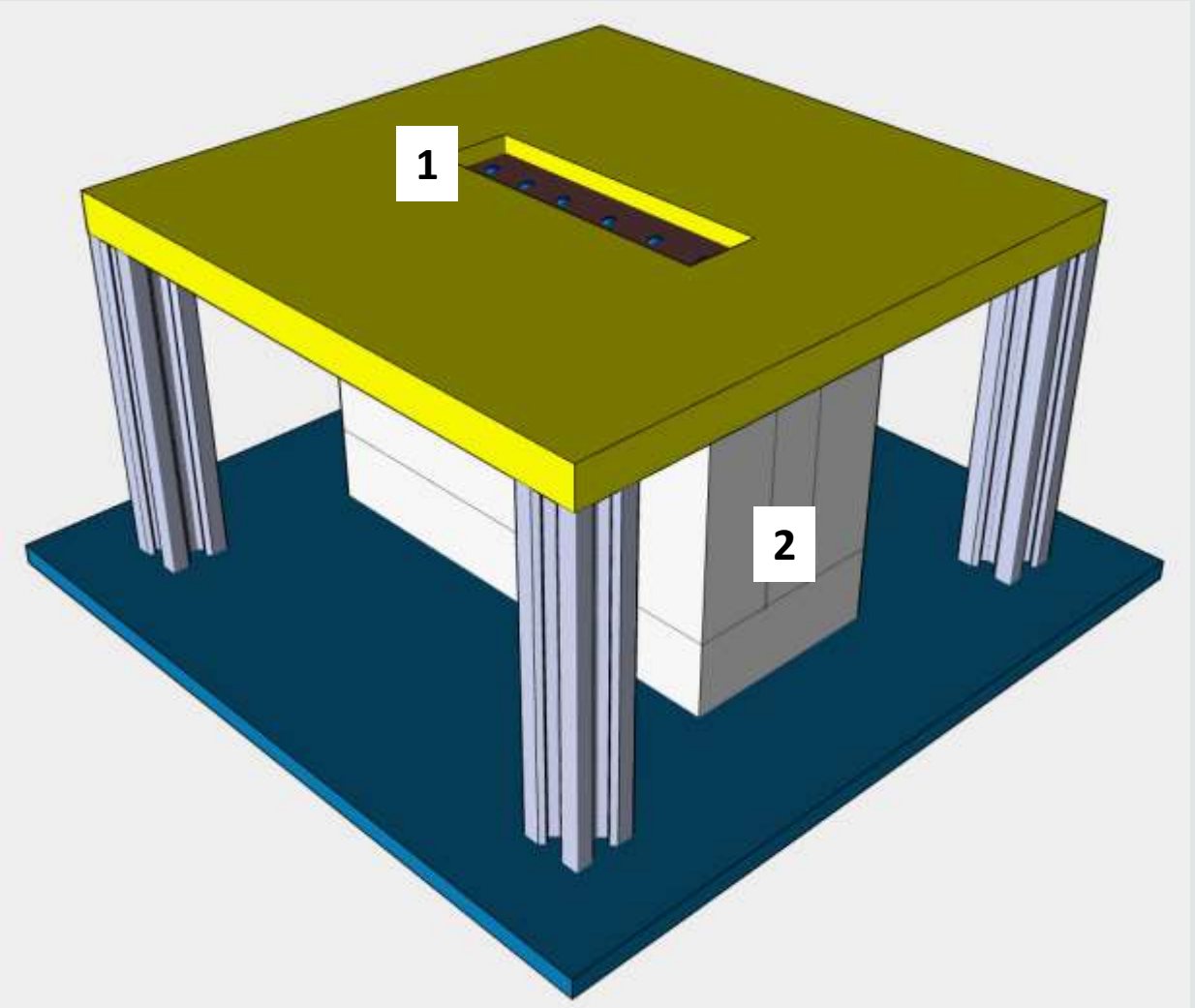
Test Setup Notes

1) Copper Plate should be inlaid into insulating material, cutout is only for illustration. Front face of copper plate should be painted matte black.
2) Cell housing insulative material should be held together either with internal hardware or external clamps to apply a slight pressure ensuring that cells make proper contact with each other throughout the test.



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